Using Games or Math Starters in the GED Classroom

Games can be used in the GED classroom to engage students in the learning process while having fun. The primary goal of games should be to build teamwork while developing new skills and knowledge. From games, students can learn not only the "what," but also the "why" and "how" of the topic. The real benefit of creating games for the GED classroom is that the activities can meet the individual needs of the student and the subject matter being taught.

The potential list of games is endless. This section provides the instructor with an article from Steve Sugar on "Ten of the Very Best Reasons for Using Classroom Games," as well as a few ideas to get instructors started in creating games and activities for the GED classroom.

Ten of the Very Best Reasons for Using Classroom Games

Sugar, Steve. The Game Group. Retrieved April 20, 2006, from http://www.thegamegroup.com/article1.htm.

Reason #1: Games Are Fun with a Purpose

Games create a cognitive engagement between the learner and the topic in a flowing, smiling environment. Games celebrate your topic and reward individual and group achievement. Games bring fun and energy into a buoyant learning zone, but with the focus on learning.

Reason #2: Games Provide Feedback to the Learner

Learners want and need feedback on their performance. Games give them immediate feedback on the quality of their input—their successes and their errors. With the appropriate corrective feedback, this can become an invaluable learning opportunity.

Reason #3: Games Provide Feedback to the Teacher

Games provide a practice field where learners interact with the topic, demonstrating their knowledge and ability to apply the information. By observing this real-time demonstration, the teacher can adjust the subsequent level of lecture, readings, and interventions accordingly.

Reason #4: Games Are Experiential

Today's learner needs to do and to try things on his/her own. Games provide an environment that transforms the passive student into an active part of the learning process where he/she can connect his/her own dots and experience his/her own ideas. Games also remind both player and teacher that energy in the classroom is a good thing.

Reason #5: Games Motivate Learners

Games engage players and then motivate them to interact with the topic. This interaction drives players to demonstrate their understanding of the topic in a friendly contest where successes are memorable moments of shared triumph and celebration and where mistakes mean only that the learner is being stretched to his or her own limits.

Reason #6: Games Improve Team Work

Games are real-time activities that bring players into teams, demonstrate the rules and roles of working together as a team, and underscore the value of team collaboration. Games give your learners a chance to know their peers as they share the same real-time experiences, allowing for strong networking and bonding.

Reason #7: Games Provide a Less Threatening Learning Environment

Because the game format is playful, the inherent challenge of the material, even new or difficult material, is less threatening. During game play, seemingly difficult questions and scenarios are “just part of the game.” And, teachers can use the window following responses to build a bridge between the topic and the learner.

Reason #8: Games Bring Real-World Relevance

Games allow you to present real-world information in the form of questions, scenarios, role-plays, and so forth. In this way, players learn not only the “what” but also the “why” of the topic from a real-world perspective. Players also observe their own behavior and that of others during game play. Post-game debriefings give insights into those behaviors in thoughtful examples observed during game play.

Reason #9: Games Accelerate Learning

Games allow you to compress your topic and demonstrated learning into shorter periods of time, accelerating the speed of learning. The visual presentation, oral interactions, and active participation of game play appeal to all of the learning styles (visual, auditory, and kinesthetic), involve both the rational and experiential mind, and help players remember what they have learned.

Reason #10: Games Give You Choices for Your Classroom

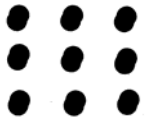
Games allow you to add variety and flexibility to your teaching menus. Games can allow you to do any or all of the following:

- Increase the level of learner involvement
- Vary the level of skill and knowledge
- Customize to any size of audience, even one-on-one
- Vary the type and level of activity
- Vary the level of classroom control
- Introduce or review topics, or both
- Vary the mix of theoretical and practical information

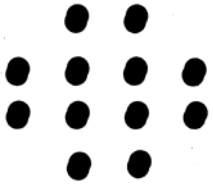
Sample Math Starters to Set Your Creativity in Motion!

Connect the Dots

The following activity reinforces the concepts of problem solving and spatial skills.



consecutive straight lines. Do not lift the pencil off the paper or repeat a line.



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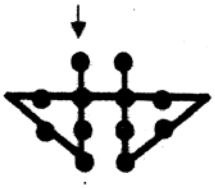
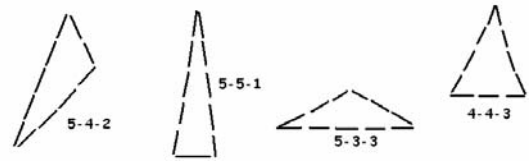


Toothpick Triangles

The following activity reinforces a student's understanding of the theorem that the measure of any side of a triangle must be less than the sum of the measures of the other two sides. (This same concept forms the basis for other questions in the domain of Geometry.)

With 11 toothpicks create **four** different triangles. You must use a whole number of toothpicks per side and all eleven sticks for each triangle.

Answer:



Ask: Why isn't 6-3-2 a valid triangle?

How many triangles can you make with 12 toothpicks?

[Surprisingly, the count goes down if you add another toothpick. With 12 toothpicks, you can only make **three** different triangles: 5-5-2, 5-4-3, 4-4-4.]

Fraction Activities

The following activities provide students with practice in applying different calculation skills to the area of fractions, as well as employing mental math.

ACTIVITY I

List some measurements in everyday life that require the use of fractions.

ACTIVITY 2

Have students work in teams of two. Give each team one pair of dice. The object of the game is to see which member of the team is the first to score 20.

Each team member rolls the dice to get a fraction.
Example: 4 and 5 gives 4/5
Player A gets a point if the fraction is in lowest terms (like 4/5)
Player B gets a point if it is not in lowest terms (like 4/6)
The first player to reach 20 points wins.

ACTIVITY 3

Have students work in teams of two. Give each team one pair of dice. The object of the game is to see which member of the team is the first to reach a total of 10.

Each team member rolls the dice in order to get a fraction.
Example: 4 and 5 gives 4/5

Each player must add his/her fractions each time the dice is rolled. For example, on the first roll Player A get 2 and 3 (2/3). On his/her second roll he/she gets 3 and 4 (3/4). The player must then add 2/3 and 3/4 to get a total of 1 5/12 on his/her next roll, the player must add the new fraction to the last total and so on.

The players alternate rolls until one of the players has reached at least 10.

ACTIVITY 4

Develop a set of fraction cards. You will need two of each fraction card. Index cards work best because they are similar to regular playing cards.

1/2, 2/2
1/3, 2/3, 3/3
1/4, 2/4, 3/4, 4/4
1/6, 2/6, 3/6, 4/6, 5/6, 6/6
1/12, 2/12, 3/12, 4/12, 5/12, 6/12, 7/12, 8/12, 9/12, 10/12, 11/12, 12/12

Divide students into teams of 2, 3, or 4. Each person is dealt one fraction card up and one fraction card down. Players can look at the card turned down and decide whether they want another card or whether they want to pass. The goal is to be closest (without going over) to the whole number 2.

This activity requires that students be able to add unlike fractions and be able to change improper fractions to a mixed number.

Algebra Equation Bingo

The following activity provides students with practice in applying basic math principles to calculation.

Try to be the first person to cross out all of the numbers in any row, column, or diagonal. In order to cross out a number, you must get that number as the solution to one of the equations shown below. Show that you have solved an equation by writing the equation number in the corner box next to the solution. The first group member to get a "bingo" must have his or her equation numbers verified by the other group members.

- 3	**7**	**14**	**- 5**
4	**- 9**	**3**	**9**
- 4	**25**	**- 8**	**- 16**
- 7	**8**	**- 23**	**12**

1. -32/8 = c
2. -84 ÷ (-6) = t
3. d = -16/2
4. -56 ÷ (-7) = s
5. b = 129 ÷ -43
6. -54 ÷ -18 = r
7. 238 ÷ -34 = k
8. y = -531 ÷ 59
9. -112 ÷ -16 = p
10. m = 828 ÷ 69
11. 272 ÷ =17 = n
12. -68 ÷ -17 = z
13. -75 ÷ -3 = a
14. e = 45 ÷ -9
15. -63 ÷ -7 = f
16. -138 ÷ 6 = h

Positive and Negative Numbers: A Card Game

The following activities provide students with practice in applying different calculation skills to in the area of positive and negative numbers, as well as employing mental math skills.

Objective: Students will practice addition and subtraction of positive and negative integers using an adaptation of the card game Twenty-Five.

Materials: Standard deck(s) of playing cards

PROCEDURE

Arrange students into groups of two or more. Have students deal out as many cards as possible from a deck of cards, so that each student has an equal number of cards. Put aside any extra cards.

Explain to students that every black card in their pile represents a positive number. Every red card represents a negative number. For example, a black seven is worth +7 (seven), and a red three is worth -3 (three). Face cards have the following values: aces have a value of 1, jacks have a value of 11, queens have a value of 12, and kings have a value of 13.

At the start of the game, have each player place his/her cards in a stack, face down. Then ask the player to the right of the dealer to turn up one card and say the number on the card. For example, if the player turns up a black eight, he or she says “8.”

Continue from one player to the next in a clockwise direction. The second player turns up a card, adds it to the first card, and says the sum of the two cards aloud. For example, if the card is a red 9, the player says: “8” = (-9) = (-1).”

The next player takes the top card from his/her pile, adds it to the first two cards, and says the sum. For example, if the card is a black 2, the player says: “(-1) = 2 = 1.”

The game continues until someone shows a card that, when added to the stack, results in a sum of exactly 25.

EXTRA-CHALLENGING VERSION

To add another dimension to the game, you might have students always use subtraction. Playing the game this way will reinforce the skill of subtracting negative numbers. For example, if player #1 plays a red 5 (-5) and player #2 plays a black 8 (= 8), the sum is -13: (-5) – (+8) = -13.

If the next player plays a red 4, the sum is -9: (-13) – (-4) = -9. (Remember, subtracting a negative number from a negative number is equivalent to adding that number.)